

Abstract Submitted
for the MAS14 Meeting of
The American Physical Society

Asymptotics with a positive cosmological constant II: Illustration with linear fields on de Sitter space-time BEATRICE BONGA, ABHAY ASHTEKAR, ARUNA KESAVAN, The Pennsylvania State University — The framework that allows the study of isolated systems is well-developed for space-times with a vanishing cosmological constant Λ and it lies at the foundation of research in diverse areas in gravitational physics. However, the standard extension of this framework to space-times with a positive Λ fails for non-stationary space-times. Here, I will outline a new proposal that does allow the study of isolated systems with $\Lambda > 0$ in a physically meaningful manner and has the additional benefit of providing a natural comparison with asymptotically flat space-times. This proposal is illustrated by calculations with test fields in de Sitter space-time. The results are contrasted with test fields in Minkowski space-time. It is expected that the results for test fields will share many features with gravitating systems. The linear analysis provides a first step to study the errors one makes by assuming $\Lambda = 0$ when studying general relativistic gravitating systems.

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Date submitted: 28 Aug 2014

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